

S/869/62/000/000/007/012  
B102/B186

Thermal neutron spectrum...

$$T_0 = \frac{\sum_k \left[ T_k \frac{1}{m_k} \Sigma_{s_k} \right]}{\sum_k \left[ \frac{1}{m_k} \Sigma_{s_k} \right]}, \quad \frac{1}{m_0} = \frac{\sum_k \left[ \frac{1}{m_k} \Sigma_{s_k} \right]}{\sum_k \left[ \Sigma_{s_k} \right]}, \quad \Sigma_{s_0} = \sum_k \left[ \Sigma_{s_k} \right]$$

The expressions thereby obtained for temperature, mass and capture cross section are

$$T = \frac{\sum_k \left[ T_k \frac{1}{m_k} \Sigma_{s_k} \right]}{\sum_k \left[ \frac{1}{m_k} \Sigma_{s_k} \right]} \quad (4); \quad m = \frac{\sum_k \left[ \Sigma_{s_k} \right]}{\sum_k \left[ \frac{1}{m_k} \Sigma_{s_k} \right]} \quad (5); \quad \Sigma_s = \sum_k \left[ \Sigma_{s_k} \right] \quad (6).$$

In the case where the energies are large ( $E \gg T_0$ ), where  $\Sigma_0 \sim 1/E$  and where the source is at infinity, the solution of (3) is a Fermi spectrum. 2) The moderator is a two-temperature hydrogen mixture,  $\Sigma_0 = 0$ . It is shown that (1) can be brought down to the differential form

Card 3/6

S/869/62/000/000/007/012

B102/B186

Thermal neutron spectrum...

$$\epsilon_1 T_1 e^{-\frac{E}{T_2}} \left\{ e^{\frac{E}{T_2} - \frac{E}{T_1}} K\left(\frac{E}{T_1}\right) \left[ e^{\frac{E}{T_1} \varphi} \right]' \right\} + \epsilon_2 T_2 e^{-\frac{E}{T_1}} \left\{ e^{\frac{E}{T_1} - \frac{E}{T_2}} K\left(\frac{E}{T_2}\right) \left[ e^{\frac{E}{T_2} \varphi} \right]' \right\} = 0 \quad (14),$$

where

$$K(x) = \sqrt{\frac{x}{\pi}} e^{-x} + \left(x + \frac{1}{2}\right) \operatorname{erf}(\sqrt{x}) \quad (11), \quad \varphi(E) = \int_E^{\infty} N(E') \frac{dE'}{\sqrt{E'}}$$

$\epsilon_k$  is the volume fraction of hydrogen at temperature  $T_k$ . Assuming

$$K(x) = \begin{cases} \frac{2}{\sqrt{\pi}} \sqrt{x} & \text{when } x \leq 0.4 \\ x + \frac{1}{2} & \text{when } x \geq 0.4 \end{cases}, \text{ two analogous differential equations are}$$

obtained for  $\varphi(E)$  for small or large  $E/T$ . If  $E/T \ll 1$ , then

$$\varphi(E) = \exp(-E/T) \left\{ 1 + \frac{1}{3} E^2 - \frac{1}{6} \left( \frac{4}{9} \frac{T}{T_0} - 1 \right) \frac{E^2}{T^2} \right\} \text{ is a solution. Furthermore}$$

Card 4/6

Thermal neutron spectrum...

S/869/62/000/000/007/012  
B102/B186

$$T_0 = \frac{\frac{\epsilon_1}{T_1^{3/2}} + \frac{\epsilon_2}{T_2^{3/2}}}{\frac{\epsilon_1}{T_1^{1/2}} + \frac{\epsilon_2}{T_2^{1/2}}}, \quad \beta^2 = -\left(\frac{T}{T_1} - 1\right)\left(\frac{T}{T_2} - 1\right), \quad T = \frac{\epsilon_1 \sqrt{T_1} + \epsilon_2 \sqrt{T_2}}{\frac{\epsilon_1}{\sqrt{T_1}} + \frac{\epsilon_2}{\sqrt{T_2}}}$$

If  $T_1 \gg T_2$ ,  $T_2 = 0$ , and  $T_1 = T \neq 0$ , then (14) reads

$$\epsilon_1 TK\left(\frac{E}{T}\right) \left[ e^{\frac{E}{T}} \varphi(E) \right]' + \epsilon_2 \left[ E e^{\frac{E}{T}} \varphi(E) \right]' \quad (20)$$

and has the solution

$$\varphi(E) = \text{const} \exp \left\{ -\frac{E}{T} - \int_0^{\frac{E}{T}} \frac{\epsilon_2 dx}{\epsilon_2 x + \epsilon_1 K(x)} \right\}$$

The neutron spectrum is then given by

Card 5/6

Thermal neutron spectrum...

S/969/62/000/000/007/012  
B102/B186

$$N(E) = \text{const} \sqrt{E} \left[ 1 + \frac{\epsilon_2}{\epsilon_2 \frac{E}{T} + \epsilon_1 K(\frac{E}{T})} \right] \cdot \exp \left\{ -\frac{E}{T} - \int_0^{\frac{E}{T}} \frac{\epsilon_2 dx}{\epsilon_2 x + \epsilon_1 K(x)} \right\} \quad (21).$$

If  $E/T \ll 1$ , then  $N(E) \approx \sqrt{E} + \frac{\sqrt{\pi}}{2} \frac{\epsilon_2}{\epsilon_1} \sqrt{T}$ . 3) The moderator consists of a mixture of heavy nuclei and hydrogen. It is once more assumed that  $\Sigma_c = 0$ , and some simplifications of the kinetic equation that hold to a first approximation are given. Each individual moderator exhibits Maxwell distribution; the energy distribution of the neutrons is different to that of the moderator. There are 3 figures.

Card 6/6

MAYOROV, L.V.; YUDKEVICH, M.S.

Three-group method for calculating the thermalization in the cell  
of a heterogeneous reactor. Atom.energ. 13 no.6:563-567 D '62.  
(MIRA 15:12)

(Nuclear reactors)

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 183 (USSR) SOV/137-59-1-1375

AUTHORS: Solov'yeva, N. A., Yudkevich, N. I.

TITLE: Alloys for Bonding to Glass (Splavy dlya spayki so steklom)

PERIODICAL: Sb. tr. Tsentr. nauch.-issled. chernoy metallurgii, 1956, Nr 15, pp 345-359

ABSTRACT: A survey of work performed at the TsNIIChM (Central Scientific Research Institute of Ferrous Metallurgy) in a search for new alloys and for improvements of existing alloys. The authors adduce data on the properties of a number of alloys and tips on the heat treatment and fabrication of parts to be bonded with glass.

P. N.

Card 1/1

ANUCHIN, V.A.; YUDKEVICH, O.Yu., red.

[Criticism on the comprehensiveness of geography] O kritike  
edinstva geografii. Predisl. N.N. Paranskogo. Moskva, Mosk.  
gos. univ. im. M.V. Lomonosova, 1961. 32 p. (MIRA 15:2)  
(Geography--Study and teaching)



YUDKEVICH, P. V.

"Radioactive Survey and Radioactive Isotopes in the Petroleum Industry of the Lower Volga Region," Utilization of Radioactive Isotopes & Emanations in the Petroleum Industry (Symposium), Min. Petroleum Industry USSR, 1957.

Results of the Joint Session of the Technical Council of Min of the Petroleum Industry USSR and Soviet Sci and Technical Association, Moscow 14-19 Mar 1956.



YUDKEVICH, R.

7

MA

\*The Lead Electrode. II.—The Capacity of the Double Layer and the Measurement of the True Surface. B. Kabanov and R. Yudkevich (*Zhur. Fizich. Khimii* [J. Phys. Chem.], 1939, 13, 813-817; *Chem. Zentr.*, 1940, 111, (11), 18).—[In Russian.] A simple method is described for determining the true surface of lead electrodes by measuring the capacity of the double layer of the metal by means of d.c. A relationship is shown to exist between the capacity of the lead electrodes and their potential. The absolute value of the capacity of a smooth lead electrode, in the region of minimum capacity, was found to be  $18 \mu\text{F./cm.}^2$ , i.e. of the same order of magnitude as in the case of mercury. It may be assumed that every negatively-charged pure metallic surface has a capacity of the same order of magnitude, which is independent of the nature of the metal. The presence of surface-active organic substances effects a decrease in the capacity of the double layer of the lead electrode surface, similar to the decrease in the case of mercury. Thus, the capacity of a spongy lead electrode in a 0.005-mol.  $\beta$ -naphthoquinoline solution is only  $320 \mu\text{F./cm.}^2$ , as against  $750 \mu\text{F./cm.}^2$  in pure  $\text{H}_2\text{SO}_4$  solution.

1913

YUDKEVICH, R.V.

Valuation of oil-bearing potential of reservoirs having low specific  
resistivity. Prikl.geofiz.no.11:63-71 '54. (MIRA 8:10)  
(Oil fields--Valuation)

YUDKEVICH, R.V.

PHASE I BOOK EXPLOITATION

SOV/5282

Florov, Vasilii Arkad'yevich, and Rozaliya Veniaminovna Yudkevich

Metally budushchego (Metals of the Future) Moscow, Izd-vo "Sovetskaya Rossiya",  
1960. 182 p. 15,000 copies printed.

Ed.: Yu. B. Berenson; Tech. Ed.: P.P. Maraksova.

PURPOSE: This book is intended for the general reader.

COVERAGE: The book, written in a popular style, tells the story of the discovery of the elements. Particular attention is given to the newer elements, which are described from the standpoint of their characteristics and uses in technology, especially metallurgy. Academician A.Ye. Peraman is mentioned as having a great interest in problems concerning new materials. There are no references.

TABLE OF CONTENTS:

Introduction by Academician A.N. Frumkin

Card 1/3

5

DAKHNOV, V.N., doktor geol.-miner. nauk; KHOLIN, A.I., kand. geol.-  
miner.nauk; PESTRIKOV, A.S.; GALUZO, Yu.V.; APRIKYAN, AM.;  
YUDKEVICH, R.V.; POPOV, V.K.; POZIN, L.Z.; LARIONOV, V.V.;  
VENDEL'SHTEYN, B.Yu.; GORBUNOVA, V.I.; DZIURAK, M.D.; YEVDOKIM VA,  
V.A.; ZHOKHOVA, R.G.; LATYSHEVA, M.G.; MAREN'KO, N.N.; MANCHEVA,  
N.V.; MOROZOVICH, Ya.R.; OREKHOVSKAYA, Ye.P.; POKLONGV, M.S.;  
ROMANOVA, T.F.; SEVOST'YANOV, M.M.; TANASEVICH, N.I.; FARMANOVA,  
N.V.; FEDOROVICH, G.P.; SHCHERBININ, V.A.; ELLANSKIY, M.M.;  
YANUSH, Ye.F.; YUNGANS, S.M., ved. red.; YAKOVLEVA, Z.I., tekhn.  
red.

[Using methods of field geophysics in studying gas-bearing re-  
servoires]Primenenie metodov promyslovoi geofiziki pri izuchenii ga-  
zonosnykh kollektorov. Moskva, Gostoptekhizdat, 1962. 279 p.

(MIRA 16:2)

(Gas, Natural--Geology)  
(Prospecting--Geophysical methods)

*YUDKEVICH S. M.*  
PARYGINA, Natal'ya Diomidovna; YUDKEVICH, S.M., red.; PULIN, L.I., tekhn.  
red.

[Novo-Tul'ski metallurgical...; a history of the plant] Novotul'skii  
metallurgicheskii...; iz istorii zavoda. [Tula] Tul'skoe knizhnoe  
izd-vo, 1957. 53 p. (MIRA 11:4)  
(Novo-Tul'skiy--Metallurgical plants)

YUDKEVICH, S.M.

KOCHETOV, Vasily Ivanovich; YUDKEVICH, S.M., redaktor; PULIN, L.I.,  
tekhnicheskiy redaktor

[Cutting 1252 meters a month] 1252 metra prokhodki shtreka v mesiatse.  
[Tula] Tul'skoe knizhnoe izd-vo, 1957. 19 p. (MLRA 10:9)

1. Brigadir kombaynovoy prokhodcheskoy brigady shakhty No.66 tresta  
"Kalininygol'" (for Kochetov)  
(Coal mines and mining)

BEZMOZGIN, E. S.; YUDKEVICH, Yu.D.

Production of gas from liquid fuels. Trudy VNIIT no.9:195-228 '60.

(MIRA 1:11)

(Gas)

(Liquid fuels)



BEZMOZGIN, E.S.; NEMCHENKO, A.G.; SINEL'NIKOV, A.S.; YUDKEVICH, Yu.D.

Contact pyrolysis of shale tar as a method for increasing  
the yield of low-boiling phenols. Trudy VNIIT no.12:97-101  
'63. (MIRA 18:11)



YUDKEVICH, Yu.D.; NEMCHENKO, A.G.; BARSHCHEVSKIY, M.M.; DE... ..

Investigating the thermal contact processing of wood wastes.  
Trudy VNIIT no.13:162-170 '64.

(MIRA 18:2)

BEZMOZGIN, E.S.; NEMCHENKO, A.G.; YUDKEVICH, Yu.D.

Pilot plant testing of a newly designed reactor for the contact  
pyrolysis of petroleum products and tars. Trudy VNIIT no.10:49-  
58 '61. (MIRA 15:3)  
(Petroleum products)(Pyrolysis)(Chemical reactors)

BEZMOZGIN, E.S.; UVAROV, I.P.; KIPRIANOV, A.I.; NEMCHENKO, A.G.; YUDKEVICH,  
Yu.D.

Vapor phase thermal demethylation of wood-tar oils in a contact  
pyrolysis reactor. Trudy VNIIT no.10:59-63 '61. (MIRA 15:3)  
(Wood tar)(Methyl group)(Pyrolysis)

UVAROV, I.P.; PARSHUTKIN, Yu.A.; BALASHOV, N.N.; BOGDANOV, G.A.; BEZMOZGIN, E.S.;  
NEMCHENKO, A.G.; YUDKEVICH, Yu.D.; KIPRIANOV, A.I.

Vapor-phase pyrolysis of wood-tar oils. Gidroliz. i lesokhim.  
prom. 14 no.8:5-6 '61. (MIRA 16:11)

1. Tsentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut  
(for Uvarov, Parshutkin, Balashov, Bogdanov).
2. Vsesoyuznyy  
nauchno-issledovatel'skiy institut po pererabotke i ispol'-  
zovaniyu topliva (for Bezmozgin, Nemchenko, Yudkevich).
3. Leningradskaya lesotekhnicheskaya akademiya im. S.M. Kirova  
(for Kiprianov).

BEZMOZGIN, E. S.; NEMCHENKO, A. G.; SHAPIRO, R. N.; YUDKEVICH, Yu. D.

Increasing the yield and heating capacity of shale producer gas.  
Trudy VNIIT no. 11:97-101 '62. (MIRA 17:5)



SUKHANOVSKIY, S.I.; AKHMINA, Ye.J.; PODGORNAYA, T.A.; BEZMOZGIN, L.S.; NEMCHENKO, A.G.; YUDKEVICH, Yu.D.

Contact pyrolysis of the settled tar from the thermalysis of hydrolyzed lignin. Gidroliz. i lesokhim. prom. 17 no.5:17-18 '64.

(MIRA 17:10)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut gidroliznoy i sul'fitno-spirovoy promyshlennosti (for Sukhanovskiy, Akhmina, Podgornaya).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut topliva (for Bezmozgin, Nemchenko, Yudkevich).

TITLE: A method for thermal dissociation of fuel. Class 10 5

SOURCE: Byulleten' izobreteniy i izvremennyye izobrazheniya, no. 11

TOPIC TAGS: Fuel thermal decomposition. Infrared radiation

ABSTRACT: This Author's Certificate introduces a method for the dissociation of fuel. In order to intensify the process, the dissociation is carried out under infrared radiation.

ASSOCIATION: None

SUBMITTED: 04Dec53

ENCL: 00

NO. REF SOV: 000

OTHER: 000

Card 1/1

YUDKIN, A.  
ASTAKHOV, V.; VOZNESENSKIY, L.; VOLKOV, P.; YUDKIN, A.

Commodity production and the operation of the law of value under  
socialism. Vop. ekon. no.4:109-122 Ap '58. (MIRA 11:5)  
(Economics)

ATLAS, Z.; YUDKIN, A.

Necessity of money in the expanding development of  
communism. Den. i kred. 18 no. 8:14-24 Ag '60.  
(MIRA 13:7)

(Money)

AUTHORS: Bogdanovskiy, S.S., Yudkin, A.K. SOV-128-58-9-2/16

TITLE: Concerning the Article of N.A. Barinov (Po povodu stat -  
N.A. Barinova)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 9, pp 4-6 (USSR)

ABSTRACT: In "Liteynoye proizvodstvo", 1958, Nr 4, an article on the use of low-silicon iron in casting was published by the Candidate of Technical Sciences, N.A. Barinov. The authors of the present article are commenting on the results attained by Barinov. The value of the graphite enclosures in blast furnace iron is not the only condition for the production of quality iron. The opinion of Barinov that the graphite separates the principal mass of the iron, contradicts the results obtained in the graphitization of cast iron. The important role of manganese is not recognized by Barinov. The influence of manganese on the mechanical properties is slight at a content of 0.75%, but at higher values this influence increases considerably. The transition to low-silicon iron by using ferrosilicon can not be recommended.

Card 1/2

Concerning the Article of N.A. Barinov

SOV-128-58-9-2/16

There are 2 graphs, 1 table, 1 photo, and 12 references,  
11 of which are Soviet and 1 English.

1. Iron--Casting
2. Cast iron--Properties
3. Cast iron--Materials
4. Silicon--Metallurgical effects

Card 2/2

YUDKIN, B.I.; KULEV, L.P. [deceased]; SHCHEKOKHIKHIN, Yu.M.

Production of some esters of diphenic acid, their properties and spectral characteristics. Izv. Sib. otd. AN SSSR no.12: 134-137 '62. (MIRA 17:8)

1. Novosibirskiy filial nauchno-issledovatel'skogo instituta polimerizatsionnykh plastmass.



1. YUDKIN, P. M.
2. USSR (600)
4. Onions
7. Ways of storing seed onions in the northern zone. Sad i og. no. 11, 1952
9. Monthly List of Russian Accessions. Library of Congress. March 1953. Unclassified.

YULKIN, F. L.

Sadovodstvo v Molotovskoi oblasti [Horticulture in Molotov Province]. Molotov,  
Obl. izd-vo, 1953. 240 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 5, August 1953.

YUDKIN, F. M., Doc Agric Sci—(USSR) "Vegetable raising in the Western Ural Region." R.A.

Moscow, 1957, 21 pp (Moscow Agric Acad in. Timiryazevs), 110 copies.

(Kb, No 29, 1957, 96)

YUDKIN, Fedor Mikhaylovich

[Fruit culture in Perm Province] Sadovodstvo v Permskoi oblasti.  
Izd. 2., ispr. i dop. Perm', Permskoe knizhnoe izd-vo, 1958. 302 p.  
(Pomology) (ICRA 12:1)

YUDKIN, Fedor Mikhaylovich, prof., doktor sel'khoz. nauk; DIKUSAR, V.V.,  
red.; FILIPPOVA, K.G., tekhn. red.

[Practices of Perm Province vegetable growers] Opyt ovoshchevodov  
Permskoi oblasti; sbornik statei. Perm', Permskoe knizhnoe izd-vo,  
1960. 89 p. (MIRA 14:10)

1, Permskiy sel'skokhozyaystvennyy institut imeni D.N.Pryanishnikova  
(~~For~~ Yudkin).

(Perm Province--Vegetable gardening)

YUDKIN, I. I.

~~YUDKIN, I. I.~~

"Penetration of the Herring into the Kara Sea and into Other Arctic Regions  
Because of Climatic Fluctuations," Dok. A N, 58, No. 9, 1947

YUDKIN, Iosif Isaakovich, Kandidat biologicheskikh nauk; KHLATINA, Ye.S.,  
redaktor; GOLLIB, E.M., tekhnicheskiiy redaktor.

[Ichthyology] Ikhtiologiya. Moskva, Fishchepromizdat, 1955. 322 p.  
(Fishes) (MLRA 8:12)



YUDKIN, Iosif Isaakovich; MOROZOVA, I.I., red.; ZARSHCHIKOVA, L.N.,  
tekhn. red.

[Ichthyology] Ikhtiologiya. Izd. 4., perer. i dop. Moskva,  
Pishchepromizdat, 1962. 351 p. (MIRA 15:10)  
(Ichthyology)

YUDKIN, M.M.

Purification of water in aquariums. Priroda 44 no.8:128 Ag '55.  
(Aquariums) (MIRA 8:10)

KHODORKOVSKIY, I.Ya., inzh.; YUDKIN, V.P., inzh.; KONEV, L.L., inzh.;  
ZERNIN, P.I., otv. za vypusk; SEMCHENKO, G.V., red. izd-va;  
SUKMANOVA, K.G., tekhn. red.

[Recommendations for the improvement of harvesting machinery]

Rekomendatsii po usovershenstvovaniyu tekhniki, ispol'zuemoi  
na uborku urozhaya. Perm', Permskoe knizhnoe izd-vo, 1960.

82 p.

(MIRA 14:1)

1. Perm (Province). Upravleniye sel'skogo khozyaystva.  
(Harvesting machinery)

YUDKINA, B.F., otvetstvennyy redaktor; GUSEV, N.F., tekhnicheskiiy redaktor

[Abridged telephone directory] Kratki telefonnyi spravochnik.  
[Moskva] 1957. 232 p. (MIRA 10:10)

1. Moscow. Gorodskaya telefonnaya set'.  
(Moscow--Telephone directories)

YUDKINA, L. N.

"Certain Aspects of Pavlovian Physiology in the Understanding of Eczema.

Vestnik venerologii i dermatologii (Bulletin of Venerology Dermatology),  
No 1, January-February 1954, (biomper), Moscow.

CHINA, L. .

"New Materials on the Problem of the Mechanism of Action of Air, Containing Added Radon, on the Sick and Healthy Skin of Experimental Animals."

Vestnik venerologii i dermatologii (Bulletin of Venerology Dermatology),  
No 1, January-February 1954, (Dionper), Moscow.

YUDKINA, L.N., kandidat meditsinskikh nauk.

Experiment with the use of Hyppophae rhamnoides oil in certain skin diseases. Vest.ven.i derm. no.2:20-24 Mr.-Ap '54. (MIRA 7:4)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zaveduyushchiy M.I. Khasin) Novosibirskogo meditsinskogo instituta.  
(Skin--Diseases) (Botany, Medical)

YUDKINA, D. N., kandidat meditsinskikh nauk

Simple method of determining vitamin A deficiency in skin diseases.  
Vest.ven. i derm. no.2:53 Mr-Apr '55. (MIRA 8:5)

1. Iz kliniki Novosibirskogo meditsinskogo instituta.  
(SKIN -- DISEASES)  
(DEFICIENCY DISEASES)



YUDKINA, L.N., kandidat meditsinskikh nauk

Treating dermatosis at the Belokurikha health resort in the Altai Territory. Vest.derm. i ven. 31 no.1:51 Ja-F '57. (MIRA 10:7)

1. Iz kliniki kozhnykh i venericheskikh bolezney Novosibirskogo meditsinskogo instituta

(SKIN--DISEASES)

(BELOKURIKHA (ALTAI TERRITORY)--RADON--THERAPEUTIC USE)

YAKUBSON, A. K.; YUDKINA, L. N.

Local treatment of alopecia areata and totalis with corticosteroid preparations. Vest. dermat. i ven. no. 4:39-43 '62. (MIRA 15:4)

1. Iz kliniki kozhnykh i venericheskikh bolezney (zav. - prof. A. K. Yakubson) Novosibirskogo meditsinskogo instituta (dir. - zasluzhenyy deyatel' nauki prof. G. D. Zalesskiy)

(BALDNESS) (ADRENOCORTICAL HORMONES)

YUDKINA, L.N., kand.med.nauk

Hypertrophic neurodermatitis of the genitalia. Vest. dermat.  
i ven. 27 no.1:37-39 Ja'63. (MIRA 16:10)

1. Iz kafedry kozhnykh i venericheskikh bolezney (zav. -  
prof. A.K.Yakubson) Novosibirskogo meditsinskogo instituta.  
(LICHEE PLANUS)  
(GENERATIVE ORGANS, FEMALE—DISEASES)

YUDKINA, T. P.

USSR/Chemistry - Catalytic conversion

Card 1/2 Pub. 40 - 17/27

Authors : Minachev, Kh. K.; Zhuykin, N. I.; Feofanov, I. I.;  
Yudkina, T. P.

Title : ~~Conversions of n-heptane~~ Conversions of n-heptane in presence of metal  
temperatures and hydrogen pressures

Periodical : Izv. AN SSSR. Otd. khim. nauk 6, 1954-1974, No. 1

Abstract : The conversions of n-heptane over Ru, Rh, Pd on  
silica gel was investigated at hydrogen pressures  
temperatures of 460°. It was found that the n-heptane  
described conditions, experiences several stages  
it undergoing complete dehydrocyclization.

Institution : Acad. of Sc.; USSR, The N. D. Zelinsky Institute

Submitted : February 17, 1954

SHUYKIN, N.I.; MINACHEV, Kh.M.; FEGANOV, L.M.; TRESHCHOVA, Ye.G.; YUDKINA,  
T.P.; AGRONOMOV, A.Ye.

Conversions of methylcyclohexane in contact with metals of the  
palladium group in flow and at increased temperature and in-  
creased hydrogen pressure. Izv. AN SSSR. Otd. khim. nauk no. 3:  
501-511 My-Je '55. (MIRA 8:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii  
nauk SSSR.

(Cyclohexane) (Catalysts, Platinum metals)

5(3)

AUTHORS: Sosnina, I.Ye., Slovokhotova, T.A., SOV/55-58-5-23/34  
Yudkina, T.P.

TITLE: Synthesis of Dicyclopentylmethane (Sintéz ditsiklopentilmetana)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya matematiki, mekhaniki,  
astronomii, fiziki, khimii, 1958, Nr 5, pp 145 - 150 (USSR)

ABSTRACT: Starting from chlorocyclopentane and ethylformate the authors  
synthetically produced a 99.60 % pure dicyclopentylmethane  
(according to a method deviating from A.F. Plate and V.I.  
Stanko [Ref 2]). The degree of cleanliness was determined  
according to the method of A.G. Anikin, Ya.I. Gerasimov, G.M.  
Dugacheva and N.N. Kozhevnikov [Ref 7]. The spectrum was re-  
corded. Furthermore it was stated: The dehydration of di-  
cyclopentylcarbinol by pyrolysis of its acetate or by means  
of magnesium sulphate can be recommended as a method for de-  
hydration of bicyclic alcohols.

Card 1/2

20

Synthesis of Dicyclopentylmethane

SOV/55-58-5-23/34

There are 14 references, 8 of which are Soviet, 2 American,  
2 German, and 2 Romanian.

ASSOCIATION: Kafedra organicheskogo kataliza (Chair of Organic Catalysis)

SUBMITTED: October 20, 1957

Card 2/2

AUTHORS: Turova-Polyak, M. B., Sosnina, I. Ye., SOV/79-29-1-22/74  
Voznesenskaya, I. I., Yudkina, T. P.

TITLE: Isomerization of the Polymethylene Hydrocarbons Under the  
Influence of Aluminum Chloride (Izomerizatsiya polimetilenovykh  
uglevodorodov pod vliyaniyem khloristogo alyuminiya)  
XXII. Isomerization of the Dicyclopentyl Methane (XXII. Izo-  
merizatsiya ditsiklopentilmetana)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 97-101 (USSR)

ABSTRACT: In this paper the behavior of dicyclopentyl methane ( a hydro-  
carbon which may belong to the constituents of the petroleum  
fraction of mineral oil, as far as its constants are concerned)  
was investigated on its reaction with  $AlCl_3$  and the influence  
was clarified that is exerted by the methylene group which  
separates the two five-membered rings, upon the direction of  
isomerization. On the basis of the experimental results of the  
present paper it may be regarded as being proved that dicyclo-  
pentyl methane, like dicyclopentyl, is subjected to skeleton  
isomerization under the influence of aluminum chloride and is  
transformed into the trans- $\beta$ -methyl decahydro naphthalene.

Card 1/2



Isomerization of the Polymethylene Hydrocarbons Under the Influence of Aluminum Chloride. SOV/79-29-1-22/74

XXII. Isomerization of the Dicyclopentyl Methane

At 23-27° isomerization takes place in a 96-98 % yield, at 0° in a smaller yield and at -5° there is no isomerization any longer. The presence of  $\beta$ -methyl decahydronaphthalene was found by catalytic dehydrogenation and confirmed spectroscopically. On the dehydrogenation the  $\beta$ -methyl naphthalene was separated and identified as picrate. According to the results obtained it is proved that the methylene group which is situated between the two rings in dicyclopentyl methane does not appreciably influence the direction of isomerization. An attempt was made to establish the isomerization mechanism of dicyclopentyl methane into the trans- $\beta$ -methyl decahydronaphthalene (see both schemes). There are 1 table and 14 references, 9 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 21, 1957

Card 2/2

5(3)

SOV/79-29-4-7/77

AUTHORS:

Turova-Polyak, M. B., Sosnina, I. Ye., Golutvina, I. G.,  
Yudkina, T. P.

TITLE:

Isomerization of Polymethylene Hydrocarbons Under the Influence of Aluminum Chloride (Izomerizatsiya polimetilenovykh uglevodorodov pod vliyaniyem khloristogo alyuminiya). XXIII. Isomerization of 2-Methyl-bicyclo-(1,2,2)-heptane (XXIII. Isomerizatsiya 2-metil-bitsiklo-(1,2,2)-geptana)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1078-1083 (USSR)

ABSTRACT:

Apart from the paper by P. R. Schlever (Ref 1), the contact transformations of bicyclic bridge hydrocarbons in the presence of  $AlCl_3$  have so far not been dealt with. As the basis of many natural products the skeleton of bicyclo-(1,2,2)-heptane is of great interest. 2-methyl-bicyclo-(1,2,2)-heptane is obtained by condensation of cyclopentadiene with acrolein and by hydrogenation of 2-methyl-bicyclo-(1,2,2)-heptene-5 in the presence of the skeleton-nickel catalyst. Theoretically two endo- and exo-isomers are possible for this heptane which, however, could hitherto not be separated (Scheme 1). Such configurations of the spatial arrangement of hydrocarbons were observed by Schlever

Card 1/2

SOV/79-29-4-7/77

Isomerization of Polymethylene Hydrocarbons Under the Influence of Aluminum Chloride. XXIII. Isomerization of 2-Methyl-bicyclo-(1,2,2)-heptane

(Ref 1). The authors found that 2-methyl-bicyclo-(1,2,2)-heptane practically completely isomerizes to bicyclo-(1,2,3)-octane by reaction with  $AlCl_3$  at  $75^\circ$ , i.e. to a system consisting of five- and six-membered rings on the basis of a seven-membered ring. At  $100^\circ$  this reaction is accompanied by the formation of condensation products. At  $21-28^\circ$  a transition from one steric configuration of 2-methyl-bicyclo-(1,2,2)-heptane into the other takes place which was proved by spectrum analysis and the physical constants. On the strength of the results obtained it may be concluded that the part of the molecule of the above heptane which corresponds to methyl cyclopentane reacts in the presence of  $AlCl_3$  in the same way as in isolated state, i.e. it expands to a six<sup>2</sup>-membered ring. On the hydrogenolysis of bicyclo-(1,2,3)-octane the m-xylene is formed. There are 1 figure, 3 tables, and 15 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: February 11, 1958  
Card 2/2

TUROVA-POLYAK, M.B.; BALENKOVA, Ye.S.; SOSNINA, I.Ye.; KHIROMOV, S.I.;  
YUDKINA, T.P.

Isomerization of polymethylene hydrocarbons under the effect of  
aluminum chloride. Part 24: Isomerization of cyclononane and  
cyclodecane. Zhur.ob.khim. 31 no.6:1970-1981 Je '81.

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.  
(Cyclodecane) (Cyclononane) (Isomerization)

TUROVA-POLYAK, M.B.; SOSNINA, I.Ye.; YUDKINA, T.F.

Isomerization of polymethylene hydrocarbons under the effect of  
aluminum chloride. Part 25: Isomerization of cyclopentylcycloheptane.  
Zhur.ob.khim. 31 no.10:3187-3190 0 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet.  
(Cycloheptane)

YUDKINA, V.P.

Determining the luminosity of AF Cygnoy-type variable stars.  
Per.zvezdy 6 no.5:278-281 Nr '58. (MIRA 12:7)

1.Gosudarstvennyy astronomicheskly institut im. Shternberga, Moskva.  
(Stars, Variable)

YUDKINA, V. P.

"Determining the Absolute Magnitude of a Star According to the Parallaxic Component  
of its Natural Motion", Astron. Zhur. 26, No. 5, 1949,  
Mbr., Rostov-on-Don State Univ. im. V. M. Molotov, -c1949-.

1. YUDKINA, V. P.
2. USSR (600)
4. Ursa Major
7. RV Ursae Majoris. Per. zvezdy, 8, No. 4, 1951.

9. Monthly List of Russian Accessions, Library of Congress, May 1953, Uncl.



YUDKINA, V. P.

Stars, Variable

SW Andromedae. Per. zvezdy 8, No. 4, 1951.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

YUDKINA, V. P.

Five Short-Period Cepheids. Peremennyye Zvezdy, No 5, 1953, 314-323.

Reference stars, maps of surroundings, and luminosity curves are presented for the following stars: RS, TV, TW Tauri, RV Ursae Majoris. (RZhAstr, No 9, 1954)

SO: W-31128, 11 Jan 55

YUDKINA, V.P.

Five short-period Cepheids. Per.zvezdy 9 no.5:314-323 Ja '54.  
(MIRA 7:8)

1. Astronimicheskaya observatoriya Rostovskogo gosudarstvennogo  
universiteta imeni V.M.Molotova.  
(Stars, Variable)

YUDKOVICH, G.M.

Distribution of the constituents of wood-chemical creosote in a  
system of immiscible organic solvents. Gidroliz i lisokhin.prom.  
13 no.2:13 '60. (MIRA 13:6)

1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanicheskoy  
obrabotki drevsiny.  
(Wood--Chemistry) (Creosote)

YUDKOVICH, Ya.S. (Pinsk).

Some results of competitive examinations in mathematics at the  
White Russian Electrotechnical Institute of Telecommunications  
in 1953. Mat.v shkole no.2:40-44 Mr-Apr '54. (MLRA 7:3)  
(White Russia--Mathematics--Competitions)  
(Competitions--Mathematics--White Russia)  
(Mathematics--Problems, exercises, etc.)

YUDKOVSKAYA, I. L., Cand Bio Sci -- (diss) "Mucous membrane of the  
stomach during an ulcer and during cancer resulting from an ulcer,"  
Leningrad, 1960, 16 pp (Institute of Experimental Medicine, AHS USSR)  
(KL, 35-60, 124)

SMIRNOV, N.M.; YUDKOVSKAYA, I.L.

State of the gastric mucosa in cancer of the fundal region.  
Vop. onk. 11 no.2:26-30 '65. (MIRA 18:7)

1. Iz patologomorfologicheskoy laboratorii (zav. - doktor med. nauk S.F. Serov; nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR prof. M.F. Glazunov) Instituta onkologii AMN SSSR (direktor - deystvitel'nyy chlen AMN SSSR prof. A.I. Serebrov).

YUDKOVSKAYA, I.L.

Phagocytic properties of the mesothelium in tissue cultures.  
Arkhn.anat., gist. 1 embr. 49 no.10:53-61 0 '65.

(MIRA 18:12)

1. Laboratoriya eksperimental'noy morfologii (zav. - doktor  
med. nauk M.P.Itkhov) Instituta onkologii AMN SSSR. Submitted  
Febr. 20, 1964.



YUDKOVSKAYA, T.I.

ISAYENKO, Lyudmila Alekseyevna; YUDKOVSKAYA, Tamara Israellevna; NOVIKOV, Ya.A., redaktor; SAKHAREVA, N.V., tekhnicheskii redaktor

[Natural history; textbook for class-5 in schools for the deaf-mute] Estestvoznaniye; uchebnik dlia 5-go klassa shkol glukhonemykh. Izd. 2-oe. Moskva, Gos. uchebno-pedagog. izd-vo Ministerstva prosveshcheniia RSFSR, 1955. 173 p. (MLRA 8:5)

(Natural history--Study and teaching)

(Deaf--Asylums and education)

YUDKOVSKIY, A.G.

LEVITSKIY, Yuriy Il'ich; YUDKOVSKIY, A.G., red.; DOVGOROD, G.O., tekhn.  
red.

[Donets Basin during the 40 years of the Soviet regime] Donetskii  
bassein za 40 let sovetskoi vlasti. Stalino, Stalinskii ekon.  
administrativnyi raion, 1957. 23 p. (MIRA 11'6)  
(Donets Basin--Coal mines and mining)

YUDKOVSKIY, A.G., inzh.

Industrial tests of various types of slope linings. Energ. stroi.  
no.20:65-67 '61. (MIR. 15:1)

1. Gidroenergoprojekt.  
(Taburishche--Precast concrete--Testing)

SOV/122-59-4-12/28

AUTHORS: Nartsov, L.N., and Yudkovskiy, L.A., Engineers

TITLE: On the Strength of Cast Angles (O prochnosti litykh ugolkov)

PERIODICAL: Vestnik Mashinostroyeniya, 1959, Nr 4, pp 47-48 (USSR)

ABSTRACT: Referring to a paper by Komissarov, P.A., Engineer "On the Design of Cast Components" (Vestnik Mashinostroyeniya, 1958, Nr 1), it is found that recommendations for the design of corners in cast components differ. A sharp edge on the outside with a small fillet on the inside are contrasted with a large radius on the outside and a relatively large fillet cutting into the cross-section and reducing the corner cross-section compared with that of the adjoining wall. Tests are reported wherein cast angles with corner designs of different type made of grey iron of 15, 18 and 24 kg/mm<sup>2</sup> ultimate tensile strength were loaded by a) pressing along the bisecting line against the external edge of the corner while supporting the two end edges; b) pressing along one leg while supporting the other leg on a foundation; and c) pulling one leg in cantilever bending whilst the end of the other leg is clamped. All three types of tests

Card 1/2

On the Strength of Cast Angles

SOV/122-59-4-12/28

and the examination of the fracture surface combine to show that the first variant (a sharp outside corner and an inside fillet radius equal to one-third of the mean thickness of the adjoining walls) yields a better strength and a better cast grain structure than the second variant (with a diminished corner cross-section). In the pure bending test, the strength of the first variant may reach 7 times that of the second.

There are 2 figures and 2 Soviet references.

Card 2/2

YUDKOVSKIY, M. (L'vov): KOVTUN, N. (L'vov)

Seminar-workshop for physics teachers. Fiz. v shkole 20 no.4:  
100-102 11-Ag '60. (MIRA 13:8)  
(Physics--Study and teaching)

YUDKOVSKIY, P.A.; BULANOV, V.Ya.; ZHURAVKOV, Yu.N.; SHEVEL', A.P.

Effect of heat treatment on the strength of drills. Stan. 1 instr.  
34 no.12:27-28 D '63.

(MIRA 17:11)

YUDKOVSKIY, S.I.

82635

S/126/60/010/02/005/020  
E111/E352

18.1230 18.8100

AUTHORS Funke, V.F., Shurshakov, A.N., Yudkovskiy, S.I.  
Kuznetsova, K.F., Shulepov, V.I. and Yurkevich, V.I.

TITLE: Electrical Resistance and Structure of WC-Co Alloys

PERIODICAL: Fizika metallov i metallovedeniye, 1960 Vol 10  
No. 2, pp 207 - 215

TEXT: Two-phase WC-Co alloys consist of hard, brittle tungsten-carbide grains and a cobalt-base plastic phase. Some workers consider that a continuous carbide "skeleton" exists (Ref. 1) and others (Ref. 2) that there is a continuous film of cobalt in alloys with over 2% weight Co. In the present work measurements of electrical conductivity were made to settle this point. Two-phase alloys with 0-100% were prepared by powder metallurgy methods. Specimens were heated at 1200 °C for 1.5 hours in hydrogen. Some were then cooled at 80 °C/hour to room temperature; others were quenched in oil at 20 °C. Fig. 1 shows specific conductivity as a function of cobalt concentration for quenched (Curve 1) and annealed (Curve 2) specimens. Plots of resistivity against temperature are shown in Fig. 2. X-ray examination was carried out (with type RKD and Card 1/3



82635

S/126/60/010/02/005/020

E111/E352

# Electrical Resistance and Structure of WC-Co Alloys

URS-50 cameras) with cobalt radiation to find the alloy structure and the cobalt lattice dimension (the latter is shown as a function of WC weight % in Fig. 3). Another series of alloys with the same cobalt content (6% by weight) but different tungsten-carbide grain size (about 0.8 - 2.2  $\mu$ ) was prepared and tested. Fig. 4 shows resistivity for annealed alloys as functions of coercive force (Curve 1) and of grain size (Curve 2) the relations obtained confirmed the conclusions from the other work, that there is a continuous layer of cobalt in alloys of this composition. The work showed that 0.5% Co is sufficient to break continuity of contact between carbide grains. No solubility of cobalt in carbide up to the eutectic melting point eutectic transformation occurred at 1250 °C. solubility of carbide in cobalt was 12-13 weight % at 1200 °C. The reported (Ref. 11) loss in plasticity of the cobalt layer the authors attribute to lattice distortion at the cobalt/tungsten-carbide boundary surface.

There are 4 figures, 2 tables and 11 references: 6 Soviet, 4 English and 1 German.  
Card 2/3

82635

S/126/60/010/02/005/020

E111/E352

Electrical Resistance and Structure of WC-Co Alloys

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut  
tverdykh splavov  
(All-Union Cermets Scientific-Research Institute)

SUBMITTED: January 6, 1960

Card 3/3

YELIUTIN, V.P.; NATANSON, A.N.; SHULEPOV, V.I.; YUDKOVSKIY, S.I.

Instrument for measuring the electric resistance of alloys at high temperatures. Zav.lab. 26 no.3:344-346 '60. (MIRA 13:6)

1. Moskovskiy institut stali im. I.V.Stalina.  
(Alloys--Electric properties)

80102

5.2100

S/080/60/033/04/13/045

AUTHORS: Funke, V.P., Yudkovskiy, S.I., Samsonov, G.V.TITLE: Some Peculiarities of the Vacuum-Thermal Manufacture of Titanium Boride <sup>21</sup>

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 831 - 835

TEXT: The effect of a charge increase on the condition of obtaining titanium diboride and also the content of impurities in the initial materials on the purity and the composition of boride is investigated here. Titanium diboride is formed by the reaction  $2\text{TiO}_2 + \text{B}_4\text{C} + 3\text{C} \rightleftharpoons 2\text{TiB}_2 + 4\text{CO}$ . The initial materials were commercial titanium dioxide which contained (%) 59.65 Ti, 0.11  $\text{Fe}_2\text{O}_3$ , 0.16  $\text{Al}_2\text{O}_3$ , calcium, magnesium and boron carbide powder with 220 mesh. The reaction was carried out in a TVV-2 furnace with a graphite heater. It has been shown that the temperature and the holding time must be increased in order to obtain titanium boride of stoichiometric composition and a low content of carbon, if the charge is increased from 10 - 20 g to 100 - 200 g. At 1,400 - 1,500°C and a holding time of 2 - 3 hours titanium boride contains up to 1% carbon. At a temperature of 1,700°C and a holding time of 3 hours the titanium boride has a stoichiometric composition and the carbon content is only 0.26%. The higher is the content of carbon in the form of carbide, the less carbon must be introduced.

Card 1/2

80102

S/060/60/033/04/13/045

Some Peculiarities of the Vacuum-Thermal Manufacture of Titanium Boride

form of carbon black, which furthers the reaction of titanium boride formation to proceed more completely. Under the conditions of high temperatures and vacuum, evaporation of the impurities and intensive purification of boride takes place. Iron, silicon, aluminum, manganese and calcium are eliminated almost completely, the remaining impurities partially.

There are: 3 tables and 11 references, 6 of which are Soviet and 5 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute of Hard Alloys)

SUBMITTED: October 15, 1959

Card 2/2

YUDKOVSKIY, S. I.

AUTHORS: Yulyatkin, V. P., Metakhan, A. I., 9/037/42/035/03/035/064  
Shulayev, V. I., Yuliyevskiy, S. I. 8070/2117

TITLE: A Device Used to Measure the Electric Resistance of Alloys at High Temperatures

PERIODICAL: Sovetskaya laboratoriya, 1960, Vol 36, No 3, pp 344-346 (USSR)

TEXT: A special device has been designed (Fig 1) for measuring the electric resistance of samples  $1 \times 6 \times 20$  up to  $10 \times 15 \times 40$  mm in size and used in powder metallurgy, at 2000 to 2500°, with a standard furnace of the type TTT-4 used to heat the samples. The sample is attached to molybdenum- or tantalum electrodes by spot welding. The electric resistance is measured by the compensation method (Fig 2, circuit diagram), and calibrated resistors are used which were

calculated by the following equation:  $R_x = R_z \cdot \frac{V_x}{V_z}$  ( $R_x$  and  $R_z$  = electric resistances of the sample and the calibration sample,  $V_x$  = voltage drop in the sample,  $V_z$  = voltage drop in the calibration sample). Phase transformations occurring in Ni-Al-Be alloys were investigated, and it was found that the electric resistance ranging between 0.1 and 0.5 ohm has to be measured at

Card 1/2

ASSOCIATION: Mezhdunarodnyy institut stali im. I. V. Stalina (Moscow Institute of Steel named I. V. Stalin)

15 2240

30453

S/126/61/012/003/008/021  
E073/E535

AUTHORS: Funke, V.F., Panov, V.S. and Yudkovskiy, S.I.

TITLE: Structure and the physical and mechanical properties of  
TiC-WC-Co carbides

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.12, No.3,  
pp.382-388

TEXT: The results are given of investigations of the structure of TiC-WC-Co carbides and of their properties as a function of the composition and heat treatment. Two series of carbides with cobalt contents between 0 and 30 wt.% and a constant content of the carbide phase in each of the series were investigated. (Yu. A. Skudin and K. F. Kuznetsova participated in the experiments). In the first series the content of titanium carbide was about 16%, in the second about 64% of the carbide phase. In the first case the carbide phase consisted of structurally free tungsten carbide and a saturated solution of WC and TiC; in the second, the carbide phase consisted of a solid solution of WC and TiC. The carbides were prepared by current methods; carbides with up to 1% Co were produced by hot pressing. The sintered specimens did not have any

Card 1/54

Structure and the physical ...

30453

S/126/61/012/003/008/021

E073/E535

pores and did not contain structurally free carbon. The carbides were homogenization annealed for two hours at 1200°C in a hydrogen atmosphere and cooled jointly with the furnace at a rate of 40 to 50°C/hour down to room temperature. Following that, the specimens were heated to 1200°C, held at that temperature for two hours, and quenched in oil at 20°C. The grain size of the WC phase and of the solid solution of WC in TiC remained practically unchanged on changing the cobalt content and during heat treatment. The average grain size of the WC phase was 2.28  $\mu$ , that of the TiC phase was 2.5  $\mu$  in the first series and 3.0  $\mu$  in the second series. The sintered, annealed and quenched specimens were subjected to metallographic and X-ray analyses and, in addition, the electric resistance, the microhardness and the bending strength were determined. Particular attention was paid to obtaining data on the relation between the specific electric resistance of two and three-phase TiC-WC-Co carbides on the one hand, and the Co content and the heat treatment conditions on the other hand. These data indicate that cobalt is soluble in the titanium carbide phase, which, in the case of the ratio TiC/WC = 0.19, is about 2% at 1200°C. If structurally free tungsten carbide is present, the

Card 2/54



Structure and the physical ...

30453

S/126/61/012/003/008/021  
E073/E535

titanium phase will be subjected to tensile stresses. Fig.1 shows a plot of the specific electric resistance,  $\rho$ ,  $\mu\text{ohm}\cdot\text{cm}$ , of Ti-WC-Co carbides as a function of the cobalt content (wt.%). Two sets of materials were used with the following heat treatments: TiC/WC = 1.765: 1 - sintered; 2 - annealed; 3 - quenched. TiC/WC = 0.19: 4 - sintered; 5 - quenched, 6 - annealed. A sharp drop in the electric resistance caused by an increase of the Co content from 0 to 4% is attributed to the relief of the thermal stresses of the carbide phase as a result of increasing the content of the ductile component, which leads to a stress relaxation and to a reduction of the concentration of tungsten carbide in the solid solution TiC-WC on increasing the cobalt content from 0 to 1%. An increase in the electric resistance for carbides containing over 4% Co is attributed to the fact that the specific electric resistance of the carbide phase is lower than that of the bonding phase and, consequently, an increase in the quantity of the latter is accompanied by an increase of the electric resistance of the carbide as a whole. Data on the dependence of the bending strength,  $\sigma$ ,  $\text{kg/mm}^2$ , on the composition,

Card 3154

30453

Structure and the physical ...

S/126/61/012/003/008/021  
E073/E535

Co, vol.%, are plotted in Fig.3 (1 - tungsten-cobalt carbides, 2 - titanium-tungsten-cobalt carbides ( $TiC/WC = 0.19$ ), 3 - titanium-tungsten-cobalt carbides ( $TiC/WC = 1.765$ )). Fig.4 is a plot of the dependence of the hardness, HV, kg/mm<sup>2</sup> on the cobalt content, wt.% (1 -  $TiC/WC = 1.765$ ; 2 -  $TiC/WC = 0.19$ ;  $\Delta$  - sintered, X - annealed, O - quenched). It can be seen that for both two-phase and three-phase WC-TiC-Co carbides the hardness increases almost linearly with increasing cobalt content and is almost independent of the heat treatment and the composition of the bonding phase. There are 4 figures and 12 references: 6 Soviet and 6 non-Soviet. The English-language references read as follows: Ref.2: Gurland, I., Norton, I., J. Metals, 1952, 4, No.10, 1054; Ref.11: Gangler, I., J. Am. Cer. Soc., 1950, 33, 367.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All Union Scientific-Research Institute for Carbides)

SUBMITTED: November 28, 1960 (initially)  
May 25, 1961 (after revision)

Card 4/54

S/122/62/000/008/003/004  
D262/D308

Yudkovskiy, S.I., Eychmans, E.F., Guseva,  
A.N., Engineers, Funke, V.F., Romanov, Y.  
E., and Smirnov, P.P., Candidates of Tech-  
nical Sciences

AUTHORS:

Alloys on the  $TiB_2$  basis for cutting tools  
42

Vestnik mashinostroyeniya, no. 8, 1962,  
44 - 47

TITLE:

PERIODICAL:

TEXT:

conducted in order to establish the physical, mechanical and cut-  
ting properties of  $TiB_2$  alloys. Specimens of 15 alloys contain-  
ing various percentages of  $TiB_2$  and bounding metals (Fe, Co, Ni)  
were tested for bending, hardness, and coefficient of friction.  
Their cutting properties under various working conditions were  
also investigated and the results of the experiments recorded in  
form of tables and graphs, and analyzed.  $TiB_2$  alloys (obtained  
by powder pressing and baking process) possess many advantages

Card 1/2

Alloys on the  $TiB_2$  basis ...

S/122/62/000/008/003/004  
D262/D308

over the existing cutting materials (greater hardness, better  
scale-resistance, absence of adhesion to worked materials, lower  
coefficient of friction) but their strength is comparatively low.  
There are 5 figures and 5 tables.

✓

Card 2/2

FURKE, V.F.; SHULEPOV, V.I.; YUDKOVSKIY, S.I.

Dependence of the electric resistance of WC-Co alloys on their structure. Fiz. met. i metalloved. 13 no.5:794-795 My '62. (MIRA 15:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.

(Tungsten-cobalt alloys--Electric properties)

FUNKE, V.F. (Moskva); YUDKOVSKIY, S.I. (Moskva); Prinsipala uchastiye  
VODYANAYA, T.A.

Structure and properties of alloys of zirconium diboride with  
iron, cobalt, and nickel. Izv.AN SSSR. Otd.tekh.nauk. Met.1  
topl. no.4:126-132 J1-Ag '62. (MIRA 15:8)  
(Zirconium alloys—Metallography) (Powder metallurgy)

15258

S/226/62/000/006/009/016  
E193/E383

17.1152

AUTHORS: Funke, V.P., Yudkovskiy, S.I. and Panov, V.S.  
TITLE: A study of the structure and physical properties of alloys of the TiC-WC-Co system

PERIODICAL: Poroshkovaya metallurgiya, no. 6, 1962, 61 - 66

TEXT: The effect of the Co content and heat-treatment on the structure and properties of three series of WC-base alloys was studied. The W content of each series varied between 0 and 30%; alloys of the first series contained WC only, those of the second and third series containing 16 and 64% TiC, respectively. Conventional methods were used for the preparation of experimental specimens, hot pressing being used in the preparation of Co-free compacts. The specimens were free from pores and did not contain structurally-free carbon. X-ray diffraction analysis and measurements of hardness and electrical resistance were conducted on specimens a) as sintered, b) annealed for 2 h at 1200 °C and furnace-cooled to room temperature and c) oil-quenched from 1200 °C after 2-h holding at the temperature. X-ray diffraction analysis has shown that the carbide phase in the WC-Co alloys is under

Card 1/3

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A study of ....

compressive stresses, whereas TiC in the ternary alloys containing structurally-free WC is under tensile stresses. Other results are reproduced graphically in Fig. 1; the electrical resistivity ( $\rho$ ,  $\Omega$  cm) is plotted against the Co content (vol. %) in WC-Co alloys (bottom graph) and ternary alloys with 16 and 64% TiC (T15 and T60, respectively, top graph); the curves marked '3 aka' and '3 aka' relate, respectively, to quenched, sintered and annealed specimens. In Fig. 2, the bending strength ( $\sigma_{\text{bend}}$ , kg/mm<sup>2</sup> - continuous curves) and Vickers hardness ( $H_v$ , kg/mm<sup>2</sup> - broken curves) are plotted against the Co content (vol. %) in sintered alloys, containing no titanium carbide (BK) or with a titanium carbide of 16 and 64% (curves T15 and T60, respectively). There are 2 figures and 1 table.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut  
tverdykh splavov (All-Union Scientific Research  
Institute of Hard Alloys)

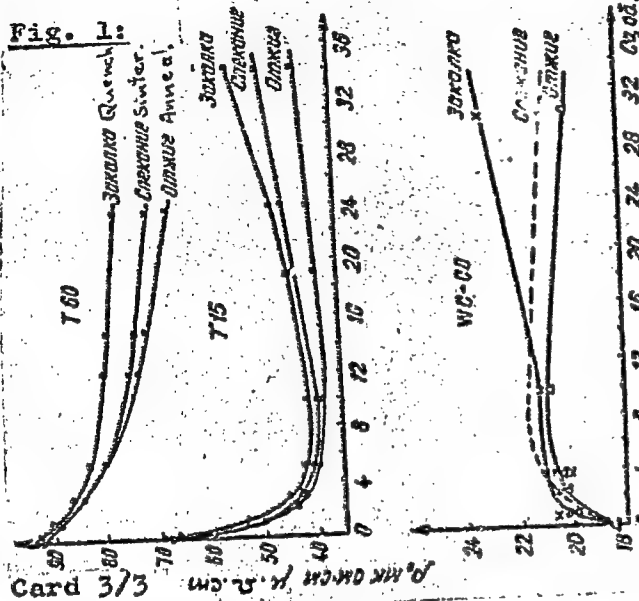
SUBMITTED: April 14, 1962

Card 2/3



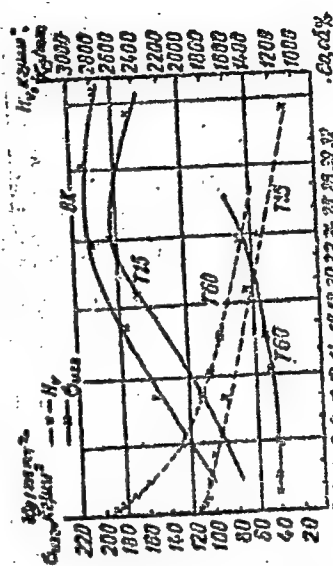
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Fig. 1:



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Fig. 2:



FUNK, V.P.; YUDKOVSKIY, S.I.

Preparing zirconium boride. Porosh. met. 3 no.4:49-53 JI-Ag '63.  
(MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh  
splavov.

(Zirconium boride)

FUNKE, V.F.; YUDKOVSKIY, S.I.

Conditions of preparation and phase composition of molybdenum boride. Zhur. prikl. khim. 36 no.11:2379-2385 (N '63. (MIRA 17:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov.

1267-03

EMP(q)/BMT(m)/BIB APT/ABE 32.

ACCESSION NR: AP3004064

AUTHOR: Pravda, V. P.; Yudkovskiy, I. I.

TITLE: High-temperature oxidation of titanium and its  
metals

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 7, 1963

TOPIC TAGS: refractory compounds, transition-metal oxides,  
titanium boride-iron, titanium boride-nickel, titanium  
boride-iron oxidation, titanium boride-nickel oxidation,  
oxidation, titanium oxide,  $\text{NiTiO}_3$ ,  $\text{TiTiO}_3$ .

ABSTRACT: The kinetics of the atmospheric oxidation of  
alloys has been studied within the 800-1000°C range for  
weights over a period of 100 hr. The alloys were  
characterized. Oxidation was carried out in air at the  
temperature maintained for the pre-heat and oxidation.

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PROCESSION NR: AP3004064

patterns of the scale were obtained in an X-ray diffractometer and source. The experimental kinetic data are plotted in Fig. 1. The calculated oxidation rate-constants ( $k$ ) are plotted in Fig. 2 versus the percentage of Fe, Ni, or Co. It was observed that the rate at 500 and 750C is approximately of the same order for all the alloys studied. A difference in this rate is seen only when the temperature is increased from 750 to 1000C: in this range the oxidation rate is higher in TiB<sub>2</sub>-Fe than in TiB<sub>2</sub>-Ni or TiB<sub>2</sub>-Co alloys. The difference with the increased temperature is associated with the growth of the oxide film. The film on TiB<sub>2</sub>-Fe alloy is made of two unequally thick layers, while a single layer is formed on TiB<sub>2</sub>-Ni or TiB<sub>2</sub>-Co alloys. At 500 and 750C and on TiB<sub>2</sub>-Ni or TiB<sub>2</sub>-Co alloys, an increase in Fe, Ni, or Co content up to 30% does not affect the oxidation rate, which remains about the same as for pure TiB<sub>2</sub>. Above the oxidation rate of the TiB<sub>2</sub>-Fe alloy in this range, the content is increased from 10 to 30% and is much higher than for TiB<sub>2</sub> or for TiB<sub>2</sub>-Ni or TiB<sub>2</sub>-Co alloys. At 1000C the rate is lower for TiB<sub>2</sub>-Fe than for TiB<sub>2</sub>-Ni or TiB<sub>2</sub>-Co alloys. It also decreased with an increase in Ni or Co content, but lower than that of the pure TiB<sub>2</sub>.

Card 1/2

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ACCESSION NR: AP3004064

further increased to 25%. The assumption that oxidation rate is dependent on the composition of the oxide film was tested by analysis. The scale for all the alloys contained  $TiO_2$  and, presumably the complex oxide  $Me_2P_2O_7$  or a salt of a boron. The scale on certain  $TiB_2$ -Fe, -Ni, or -Co alloys contained  $NiTiO_3$  or  $CoTiO_3$ . The proportions of the different phases in the composition and temperature. Orig. art. has: 1 source.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy tsentr  
(All-Union Scientific Research Institute of Hard Alloys)

SUBMITTER: OJ/NK

DATE ACQ: 1963

OUT CODE: MA,MC

NO REF SO: 100

Card 2A3

ACCESSION NR: AP4039622

S/0076/64/038/005/1280/1283

AUTHOR: Funke, V. P.; Yudkovskiy, S. I.

TITLE: High-temperature oxidation of boride-base alloys with iron-group metals

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 5, 1964, 1280-1283

TOPIC TAGS: zirconium boride, zirconium boride alloy, iron containing alloy, cobalt containing alloy, alloy oxidation, high temperature oxidation

ABSTRACT: The oxidation of zirconium boride-base alloys with iron-group metals in the 500—1000C range was investigated. The oxidation behavior of unalloyed zirconium boride at 500—750C differs from that of zirconium boride alloys; in the former a weight loss is observed and in the latter, a weight gain. The phenomenon is explained by the difference in the nature of oxide films formed at high temperatures. The film formed on zirconium boride is porous and does not prevent the escape of volatile components; on alloys, a glass-like dense film, adhering tightly to the base is formed. With an

Card 1/3

ACCESSION NR: AP4039622

increase in oxidation temperature to above 750C, the oxidation follows a parabolic rate and is accompanied by a weight increase in both cases (see Fig. 1 of the Enclosure). X-ray diffraction patterns of oxide films on zirconium boride formed at 1000C contain primarily lines of monoclinic zirconium dioxide. Components of film on the alloys could not be positively identified. With increasing oxidation temperature, the content of metals in the film increases. The oxidation resistance of zirconium boride base alloys is 2—3 times higher than that of titanium boride-base alloys.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute of Hard Alloys)

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Card 2/3